

## MULTI-MODE TRANSPONDER RECEIVER ARCHITECTURE

### ABSTRACT OF THE DISCLOSURE

A transponder receiver for detecting different radio frequency (RF) interrogation mode signals having relatively wide and narrow bandwidths about a common RF center or carrier frequency. A front end stage of the receiver has a preselector with a wide band RF filter for passing both of the wide and the narrow bandwidth interrogation mode signals about the RF center frequency, and a mixer for converting signals from the preselector to frequencies within an intermediate frequency (IF) band. A first IF channel has a narrow band IF filter with a pass band sufficiently wide to pass first IF signals corresponding to the narrow bandwidth interrogation mode signals, but to reject signals corresponding to undesired interfering signals at frequencies near the narrow bandwidth interrogation mode signals. A second IF channel has a wide band IF filter with a pass band sufficiently wide to pass second IF signals corresponding to the desired wide bandwidth interrogation mode signals. The receiver may be incorporated in a transponder for operation in narrow IFF Modes 1-4, C and S, and in wide IFF Mode 5, with optimum performance in all modes.